



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

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**INFORMATION TECHNOLOGY P2
MEMORANDUM**

MARKS: 150

This memorandum consists of 11 pages.

SECTION A: MULTIPLE-CHOICE QUESTIONS**QUESTION 1:**

- 1.1 ✓ A Piggybacking (1)
- 1.2 ✓ C DSS (1)
- 1.3 ✓ D Electronic (1)
- 1.4 ✓ A Patch (1)
- 1.5 ✓ A Run most of their applications from their local hard drives. (1)
- 1.6 ✓ C A private company network. (1)
- 1.7 ✓ B Send a print file to a file on the hard drive. (1)
- 1.8 ✓ B Receives information that is sent via arguments to the method. (1)
- 1.9 ✓ D Utilities (1)
- 1.10 ✓ B Downloads any new content automatically without the user needing to log on to those sites. (1)

TOTAL SECTION A: 10

SECTION B: SYSTEM TECHNOLOGIES**QUESTION 2**

- 2.1 2.1.1 ✓Modular design (1)
- 2.1.2 ✓You can repair the computer by replacing a broken or faulty component.
✓You can upgrade the computer by adding new parts or replacing existing ones with more powerful versions. (2)
- 2.1.3 ✓ZIF socket (1)
- 2.2 2.2.1 ✓Fetching instructions and data from the memory (RAM)
✓Decoding the instructions
✓Executing the instructions
✓Transferring data back to the memory. (4)
- 2.2.2 Speed – ✓✓A higher speed means more instructions can be processed in the same amount of time.
Cores – ✓✓Each core can be working on a separate program but at the same time. (4)
- 2.2.3 ✓The maximum amount of memory (RAM) that is supported. (1)
- 2.2.4 ✓More than one instruction during a clock cycle is executed
✓by simultaneously dispatching multiple instructions to redundant functional units on the processor.
(✓✓There are pipelines in the CPU.) (2)
- 2.2.5 ✓Multi-processing/Multi-core-processing (1)
- 2.3 2.3.1 ✓With SaaS you are renting the software for a month/year period
✓instead of buying a license to use it forever. (2)
- 2.3.2 Cloud-based apps
✓The software runs on remote servers. You pay a monthly or yearly fee to access and use the software. You do not have to install any software on your computer, but do need fast Internet and have to be connected to the Internet to use the software.
Downloadable apps
✓The software is downloaded and runs on your computer. You need to install the software. You do not have to be connected to the Internet to be able to use the software. (2)

TOTAL SECTION B: 20

SECTION C: COMMUNICATION AND NETWORK TECHNOLOGIES**QUESTION 3**

- 3.1 3.1.1 ✓The Internet is a worldwide computer network, consisting of computers and networks ✓that are linked using different kinds of communication mediums. (2)
- 3.1.2 ✓An ISP is a company that has a permanent, fast connection to the Internet.
✓These companies sell Internet access and services to individuals or organisations for a monthly fee. (2)
- 3.2 3.2.1 ✓✓Any TWO relevant advantages
- You have a permanent digital connection to the Internet.
 - Possible to have a guaranteed bandwidth.
 - Data cost is generally lower.
 - Speed – ADSL can be much faster. (2)
- 3.2.2 Modem
✓Converts the data or signal from a computer to a format that can be transmitted over a communication channel.
Router
✓Makes communication between networks over the Internet possible. (2)
- 3.2.3 ✓No, often one device combines all the functions of a switch, modem, router and wireless base station. (1)
- 3.2.4 ✓WiMax allows more secure communication over a wider area. (1)
- 3.3 ✓Companies such as Google encourage you to create an account, giving away free services such as Gmail, Goggle Docs and Google Drive which you can only access if you have an account with them.
✓This way they can track everything you browse, contents of your e-mails and documents, as well as your cloud storage. They use this information to build a profile of you – and post the ads accordingly. (2)
- 3.4 3.4.1 ✓It means the web pages' content was seldom or infrequently updated. (1)
- 3.4.2 ✓Users became content creators, and not just content consumers. They started uploading to sites for others to use and view. (1)
- 3.4.3 ✓ Such searches will be made possible by detailed, structured metadata attached to all web content, ✓ and the fact that users will make their contextual information 'known' to their computers. (2)

- 3.5 3.5.1 ✓PAN is a computer network with a range of a few meters
✓that is organised around an individual. (2)
- 3.5.2 ✓VPN is a network implemented via the Internet to
✓enable the user to log onto a network from a remote location
✓with the same benefits of privacy and security as a LAN. (3)
- 3.5.3 ✓Any ONE
• Remote desktop access
• A dedicated line (1)
- 3.5.4 ✓LAN / Local Area Network (1)
- 3.6 3.6.1 ✓✓Any TWO
• BitTorrent is a faster, cheaper and more efficient method
to distribute large files than regular download methods.
• BitTorrent offers an effective use of available download
bandwidth.
• BitTorrent client programs are free. (2)
- 3.6.2 ✓✓Any TWO
• It is illegal to use BitTorrent to download copyrighted
movies and music.
• Your computer can become infected by malware.
• You are not anonymous and the files you download can
be traced back to you.
• You could be guilty of piracy. (2)
- 3.6.3 ✓A protocol is a set of rules for communication between network
devices. (1)
- 3.6.4 ✓IP (1)
- 3.6.5 ✓FTP (1)

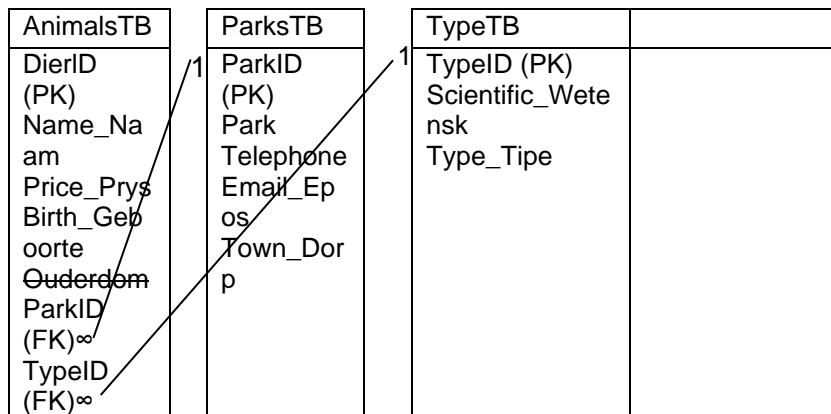
TOTAL SECTION C: 30

SECTION D: DATA AND INFORMATION MANAGEMENT

QUESTION 4

- 4.1 4.1.1 ✓Desktop databases
✓Server DBMSs (2)
- 4.1.2 ✓A distributed database is a system where parts of a database
✓are spread across servers in separate locations. (2)
- 4.1.3 ✓Any ONE
 - When the potential number of connected users becomes too large for a single server to cope with.
 - When a business is spread over a large geographical area. (1)
- 4.2 4.2.1 ✓Update anomaly: ✓If contact details of the park change, they must be altered in more than one place.
✓Delete anomaly: ✓If a record of a park is deleted, information in connection of the animal will also be removed. (4)
- 4.2.2 ✓Age
✓Can be calculated using the birth date. (2)
- (a) ✓✓Any TWO
 - No repetitive columns may appear.
 - One entry per field.
 - Identify the primary key for the table. (2)

(b)



- ✓ Tabel
- ✓PK (for all tables)
- ✓FKx2
- ✓Relationships (1-to-many)
- ✓Relationships (correctly shown) (7)

4.2.4 ✓SELECT Name_Naam, Price_Prys, Birth_Geboorte, Park FROM tblAnimals_Diere ✓WHERE Type_Tipe = "Elephant_Olifant" ✓ORDER BY Name_Naam (3)

4.2.5 ✓DELETE FROM tblAnimals_Diere ✓WHERE Name_Naam = "Dumbo" (2)

TOTAL SECTION D: 25

SECTION E: SOLUTION DEVELOPMENT**QUESTION 5**

- 5.1 5.1.1 ✓✓✓✓ Any FOUR
- The button at the top should be at the bottom.
 - The Edits should be empty
 - The order is incorrect – put 'Name' first.
 - Could use a SpinEdit for the age instead of an Edit.
 - The spacing between the Edits should be the same.
(Or any other appropriate answer.) (4)
- (a) The program is expecting an Integer value, but the user entered text. (1)
- (b) The answer should be in the coding – it can't be precautions on the form (like changing the Edit to a SpinEdit)
✓Validate the value entered into the 'Age' field. (1)
- 5.2 5.2.1 ✓✓ Read in two values and check if either is a factor of the other. (2)
- 5.2.2 Display
✓ `lblMessage.Caption := IntToStr(iNumber2) + ' is a factor of ' + IntToStr(iNumber1)`
- Display Error
✓ `lblMessage.Caption := 'No Factors';`
(Any appropriate, similar messages) (2)
- 5.2.3 ✓ Integer (1)
- 5.2.4 ✓ Runtime error (1)

Circle	
Private attributes	Public methods
- Radius ✓	+ Constructor (Radius) ✓ + GetArea() : Real + GetCircumference() : Real ✓

(3)

5.3.2 ✓To be able to create an object and
✓To set the initial values at the same time. (2)

5.3.3 ✓A private method can be accessed only in the class/unit in which
it is declared.
✓A public method can be accessed in other classes/units as well. (2)

5.3.4 ✓✓ObjectName.Free (2)

5.4 ✓For..Do-Loop (1)

5.5 arrName

Roeltin	Jason	Reuben	Quintus	Wian	Jandré	Roeltin
[1]	[2]	[3]	[4]	[5]	[6]	[1]

✓Daniel is eliminated out of the array
✓The index only goes up till 6
✓Names are still in correct order and the structure looks correct. (3)

TOTAL SECTION E: 25

SECTION F: INTEGRATED SCENARIO**QUESTION 6**

- 6.1 ✓Topology (1)
- 6.2 6.2.1 UTP (✓✓Any TWO)
- Easy and inexpensive to install.
 - The data rate is normally 100 Mbps but gigabyte data rate is also available
 - Data transfer over short distances
 - Consists of one or more pairs of copper wires twisted around each other forming the cable.
- Fibre optic (✓✓Any TWO)
- Fibre is thin and lightweight – can be used in cramped areas.
 - Complex to install and configure
 - Cannot go around sharp corners – it can be easily damaged
 - If a section of the cable becomes damaged, the whole cable has to be replaced (cannot be repaired) (4)
- 6.2.2 ✓UTP (1)
- 6.2.3 ✓Distance or range – WiFi has a range limit of 10 m – 100 m.
✓Bandwidth or data rate – Wifi has the lowest bandwidth overall. (2)
- 6.3 6.3.1 ✓The function of the NIC is to get data from the rest of the computer system and to
✓encode the data so that it can be sent over a specific medium. (And vice versa) (2)
- 6.3.2 ✓Buy a physical card to plug into the motherboard
✓ Buy an NIC that connects to a USB port.
(also accept buying a new motherboard with an onboard NIC) (2)
- 6.4 6.4.1 Web-based e-mail ✓Access your e-mail account through a web browser from any location that has Internet access. It is free.
ISP-based e-mail ✓You receive an e-mail address when you sign up with an ISP. You access your e-mail by using software such as Microsoft Outlook and Outlook Express on the computer where your account settings have been entered. (2)
- 6.4.2 Either ONE of the two options:
Option 1
CC – ✓They are all friends, so it does not matter if ✓everybody can see the e-mail addresses of everyone. OR It is easier to reply to all with CC.
Option 2
Bcc – ✓It is professional to use Bcc as ✓not everyone needs to see all the e-mail addresses the e-mail is sent to. (2)

- 6.5 6.5.1 ✓A computer virus is software that is written to disrupt the normal functioning of a computer
✓and is loaded onto a computer without the knowledge or consent of the owner. (2)
- 6.5.2 ✓Malware (1)
- 6.5.3 ✓✓Pharming is an identity theft scam where the user's computer is infiltrated so that they are automatically redirected to another (fake) website, even if you type in the correct URL for that website. (2)
- 6.5.4 ✓A firewall is hardware or software that monitors which programs are trying to access your computer via the Internet ✓or trying to access the Internet from your computer. (2)
- 6.6 ✓Cyber bullying is when someone uses ICT to malign, mock, embarrass, threaten or intimidate someone. (1)
- 6.7 6.7.1 ✓A social engineer is a con artist who pretends to be what they are not
✓in order to benefit themselves (to gain access to information, money, etc.) (2)
- 6.7.2 ✓✓✓Any THREE (3)
- Turn notifications off on your mobile device or enable them for a limited group of selected people.
 - Set aside specific time for engaging with social media.
 - When doing homework / studying, it is important to switch your phone off or switch it to silent mode.
(Any other reasonable answer.)
- 6.8 ✓Digital divide (1)
- 6.9 ✓✓✓Any TWO (2)
- Need to be online
 - If the company goes bankrupt, you lose the programs and data.
 - The security of documents and backups is beyond your control.
 - The company can easily change fee structures without you having a choice.
 - The company can easily deny your access to your data if you are branded as a spammer.
(Any other reasonable answer.)

6.10 Virtualisation

✓This is when you create a virtual computer that runs on top of your current operating system. You can install different operating systems and software on this virtual computer.

Virtual memory

✓An area of storage or disk space that the operating system keeps for its own use. (2)

6.11 6.11.1 ✓✓Any TWO

- No waiting in long queues.
 - Available for transactions 24/7
 - Can use it anywhere
- Any other reasonable answer.) (2)

6.11.2 ✓A lock symbol appears in the browser interface.

✓The address will start with HTTPS. (2)

6.12 ✓Recently used instructions that are most likely to be needed next are stored in high speed cache memory.

✓to alleviate the bottleneck of retrieving data and instructions from slower RAM memory. (2)

TOTAL SECTION F: 40

GRAND TOTAL: 150